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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,257	01/14/2002	Tomoyuki Sasaki	0819-0732	7432

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EXAMINER

RAO, SHRINIVAS H

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 11/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/043,257

Applicant(s)

SASAKI ET AL.

Examiner

Steven H. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-32 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

This application contains claims directed to the following patentably distinct species of the claimed invention:

#### Embodiments:

One (1) described in figures 1(a) to 1 (d) and figs. 2 and 3. An additional difference between this embodiment and other embodiment is the step shown in fig. 1(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned with pure water at room temperature.

Two (2) described in figures 1(a) to 1(d) and fig. 4. An additional difference between this embodiment and other embodiment is the step shown in fig. 1(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned with pure water at variously changing temperatures.

Three (3) described in figures 1(a) to 1(d) and fig. 5 . An additional difference between this embodiment and other embodiment is the step shown in fig. 1(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned with diluted hydrofluoric acid aqueous solution .

Four (4) described in figures 1 (a) to 1 (d) & figs. 6, 7. An additional difference between this embodiment and other embodiment is the step shown in fig. 1(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by heat treatment namely heating at 60 degrees with a hot plate.

Five (5) described in figures 1 (a) to 1(d) & fig. 9. An additional difference between this embodiment and other embodiment is the step shown in fig. 1(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by heat treatment both in air and under vacuum for 60 seconds.

Six (6) described in figures 1 (a) to 1(d) & fig. 10 An additional difference between this embodiment and other embodiment is the step shown in fig. 1(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by N<sub>2</sub> plasma treatment.

Seven (7) described in figures 1(a) to 1(d) & fig.11 An additional difference between this embodiment and other embodiment is the step shown in fig. 1(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by irradiating the substrate with an electron beam.

Eight (8) described in figures 12(a) to 12 (d) & figs. 13 and 14. An additional difference between this embodiment and other embodiment is the step shown in fig. 12 (c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by dry etching after removal of the residual gas including the ammonia-containing material and water.

Nine (9) described in figures 15(a) to 15 (e) & figs.16. An additional difference between this embodiment and other embodiment is the step shown in fig. 15 (c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by the formation of an additional layer of silicon oxide film that is formed by low pressure CVD.

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Ten (10) described in figures 15 (a) to 15(e) & figs. 17. An additional difference between this embodiment and other embodiment is the step shown in fig. 15 (c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by formation of an additional layer of silicon oxide film that is formed by thermal oxidation.

Eleven (11) described in figures 18(a) to 18 (d) and fig. 19. An additional difference between this embodiment and other embodiment is the step shown in fig. 18(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by TMAH aqueous solution at 20 °C.

Twelve (12) described in figures 20(a) to 20 (e) and fig. 21. An additional difference between this embodiment and other embodiment is the step shown in fig. 20(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by O<sub>2</sub> plasma treatment at a flow rate of 200sccm, 50 Torr pressure, RF power of 400W and the substrate being heated at 30 °C.

Thirteen (13) described in figures 24(a) to 24(d) and fig. 25. An additional difference between this embodiment and other embodiment is the step shown in fig. 24(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by cleaning with pure water and TMAH aqueous solution at 20° C.

Fourteen (14) described in figures 26 (a) to 26 (d) and fig. 27. An additional difference between this embodiment and other embodiment is the step shown in fig. 24(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by a two step process namely first cleaning with TMAH aqueous solution and in the second step cleaning with pure water.

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Fifteen ( 15) described in figures 28(a) to 28 (f) and 29. An additional difference between this embodiment and other embodiment is the step shown in fig. 24(c) wherein the step of cleaning the substrate bearing the resist mask is cleaned by ashing and cleaning and also includes the formation of a second resist film.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

Other differences between the embodiments are partially set out in pages 75-77 of the specification.

Currently, no claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added.

An argument that a claim is allowable or that all claims are generic is considered non responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record

showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

A telephone call was made to Mr. Eric J. Robinson on September 05, 2002 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (703) 3065945. The examiner can normally be reached on 8.00 to 5.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaudhuri Olik can be reached on (703)3062794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 7463926 for regular communications and (703) 872-9319 for After Final communications.

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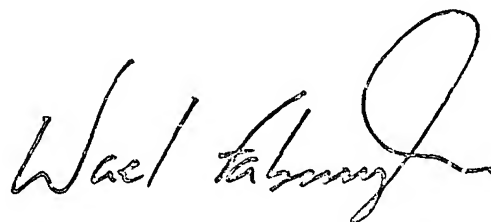
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 3067722.



Steven H. Rao

Patent Examiner

November 14, 2002.



SUPERVISORY PRIMARY EXAMINER  
TECHNOLOGY CENTER 2000